



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/010,149	11/12/2001	Robert F. Evans	FCI-2580/C2977	7215
7590	01/15/2004			
Woodcock Washburn LLP				
46th Floor				
One Liberty Place				
Philadelphia, PA 19103				
			EXAMINER	
			HARVEY, JAMES R	
		ART UNIT	PAPER NUMBER	
		2833		

DATE MAILED: 01/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/010,149	Applicant(s) EVANS, ROBERT F.	
	Examiner James R. Harvey	Art Unit 2833	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 8, 9, 11, 12, 15, 16, 19-24 and 30 is/are pending in the application.
- 4a) Of the above claim(s) 25-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8, 9, 11, 12, 15, 16, 19-24 and 30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Cancellations

- The cancellation of claim(s) 6, 7, 10, 13, 14, 17, and 18 has been made of record.

Corrected Drawings

- The corrected drawing (figure 2) filed 10-15-2003 is approved by the examiner.

Claim Rejections - 35 USC § 102

- The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

** Claim(s) 1,3,4, and 9-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Paagman (6083047).

-- In reference to claim 1, Paagman shows (figure 20a) a substantially planar dielectric 31;
a substantially planar ground plane (36, 38) (column 5, line 31) disposed on one planar surface 38 (column 5, lines 23 –25, “back surface” (figure 8a)) of the dielectric; and

a plurality of differential pair signal conductors 44 (figure 8a) disposed on the opposing planar surface of the dielectric, each signal conductor is located in a first plane substantially parallel to the ground plane and each differential pair of signal conductors comprises a corresponding pair of signal contact pins 43, each pair of signal contact pins located in a plane substantially orthogonal to the ground plane (figure 8a).

Further, the intended use of the conductor for transporting a differential signal is seen to be met by any conductor, because any conductor can transport any signal that is necessary.

-- In reference to claim 3, Paagman shows the dielectric comprises a recess 2 that can be used for receiving a solder ball for a ball grid array connection to a circuit card (column 4, lines 19-25).

-- In reference to claim 4, Paagman shows (figure 2) the dielectric comprises a finger (column 5, lines 6-9) extending substantially along the plane of the dielectric, the signal conductor extending along the finger (column 5, line 5).

-- In reference to claim 9, Paagman shows (figure 20a) at least a portion 36 of the ground plane is on the dielectric.

In reference to the limitation "plated and etched onto the dielectric" The method of forming, the device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight.

-- In reference to claim 11, Paagman shows (figure 20a) at least a portion of the signal conductor is on the dielectric.

In reference to the limitation "plated and etched onto the dielectric" The method of forming, the device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight.

-- In reference to claim 12, Paagman shows each signal conductor 44 (figure 8a) of the plurality of differential pair signal conductors comprises a first section (40) and a second section (41) disposed approximately ninety degrees to the first section.

** Claim(s) 1,4,5,13-24 and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Kline (6461202).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

-- In reference to claim 1, Kline shows (figure 4) a substantially planar dielectric 86; a substantially planar ground plane 84 disposed on one planar surface of the dielectric;

a plurality of differential pair signal conductors 88 disposed on the opposing planar surface of the dielectric, each signal conductor is located in a first plane substantially parallel to the ground plane and each differential pair of signal conductors comprises a corresponding pair

Art Unit: 2833

of signal contact pins 96, each pair of signal contact pins located in a plane substantially orthogonal to the ground plane (see examiner's figure).

Further, the intended use of the conductor for transporting a differential signal is seen to be met by any conductor, because any conductor can transport any signal that is necessary.

-- In reference to claim 4, Kline shows wherein the dielectric comprises a finger 166 (figure 5) extending substantially along the plane of the dielectric, the signal conductor 96 extending along the finger.

-- In reference to claim 5, Kline shows (figure 4) the ground plane 84 comprises a plurality of ground contact pins 154 extending from an end thereof.

-- In reference to claim 15, Kline shows the signal conductor 92 comprises a plurality of differential pairs of signal conductors and conductors within a differential pair of signal conductors are located closer than conductors of two adjacent differential pairs (figure 4).

-- In reference to claim 16, Kline shows (figure 4) a plurality of connection modules (cover sheet) located substantially parallel to each other, each module comprising: a substantially planar dielectric 86; a substantially planar ground plane 84 disposed on one planar surface of the dielectric; and a plurality of differential pairs of signal conductors 88 disposed on opposing planar surface of the dielectric, each signal conductor 98 is located in a first plane substantially parallel to the ground plane 86 and each differential pair of signal conductors comprises a pair of signal contact pins 96, each pair of signal contact pins located in a plane substantially orthogonal to the ground plane.

-- In reference to claims 19 and 30, Kline shows for each connection module, the ground plane comprises a ground contact pin 154 for each differential pair of signal conductors 92 and each ground contact pin 154 is located substantially coplanar (figure 6) with a corresponding pair of signal contact pins.

-- In reference to claim 20, Kline shows

a plurality of connection modules (cover sheet) located substantially parallel to each other, each module comprising: a substantially planar dielectric 86; a substantially planar ground plane 84 disposed on one planar surface of the dielectric; and a plurality of differential pair signal conductors 88 disposed on the other planar surface of the dielectric, for each connection module, each signal conductor is located in a first plane substantially parallel to the ground plane and each differential pair of signal conductors comprises a pair of signal contact pins 96, each pair of signal contact pins located in a plane substantially orthogonal to the ground plane, and the ground plane comprises a ground contact pin 158 for each differential pair of signal conductors and each ground contact pin is located substantially coplanar with a corresponding pair of signal contact pins (figure 3); and a receptacle connector 22 (cover sheet) comprising:

a plurality of receptacles contacts (24, 26) for receiving the signal contact pins and the ground contact pins.

-- In reference to claim 21, Kline shows (cover sheet)

the plurality of receptacle contacts 24 are substantially cylindrical shaped.

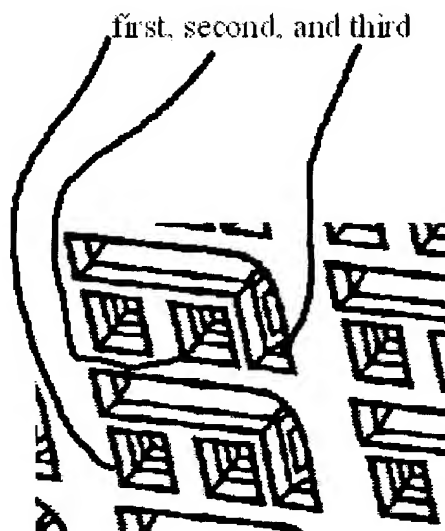
-- In reference to claim 22, Kline shows ((cover sheet) and (figure 6) the

Art Unit: 2833

plurality of receptacle contacts are arranged into an array of rows and columns.

-- In reference to claim 23, Kline shows (see examiner's figure) the columns are arranged in repeating patterns of first, second, and third columns and the first and second columns are spaced farther apart than the second and third columns.

-- In reference to claim 24, Kline shows the (figures 4 and 6) columns are arranged in repeating patterns of first, second, and third columns and the first and second columns are for connection to differential pair signal contact pins and the third column is for connection to ground contact pins.



Claim Rejections - 35 USC § 103

- The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2833

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

** Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Paagman in view of The American Heritage Dictionary.

-- In reference to claims 2, Paagman shows substantially the invention as claimed. However, Paagman does not show that the dielectric substrate comprises polyimide.

The American Heritage Dictionary teaches that polyimide is used primarily as a coating or film on a substrate (see attached definition from The American Heritage Dictionary).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the teachings of The American Heritage Dictionary to improve the dielectric substrate of Paagman because, as taught by The American Heritage Dictionary, polyimide improves the dielectric substrate's resistance to the wear that is associated with installing and reinstalling the faulty modules of Paagman.

It is noted that this is substantially the same rejection as was documented in the previous office action.

** Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Paagman.

-- In reference to claim 8, Paagman shows substantially the invention as claimed. However, Paagman does not show that the ground plane comprises phosphor bronze.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to choose the ground plane to be comprised of phosphor bronze, since it has been held to be within the general skill of a worker in the art to select a known material on the

basis of its suitability for the intended use. In re Leshin, 125 USPQ 416 (CCPA 1960). One skilled in the art would be motivated to choose phosphor bronze because it is a good conductor of electricity that it is less expensive than other conductors that contain a higher percentage of the expensive copper.

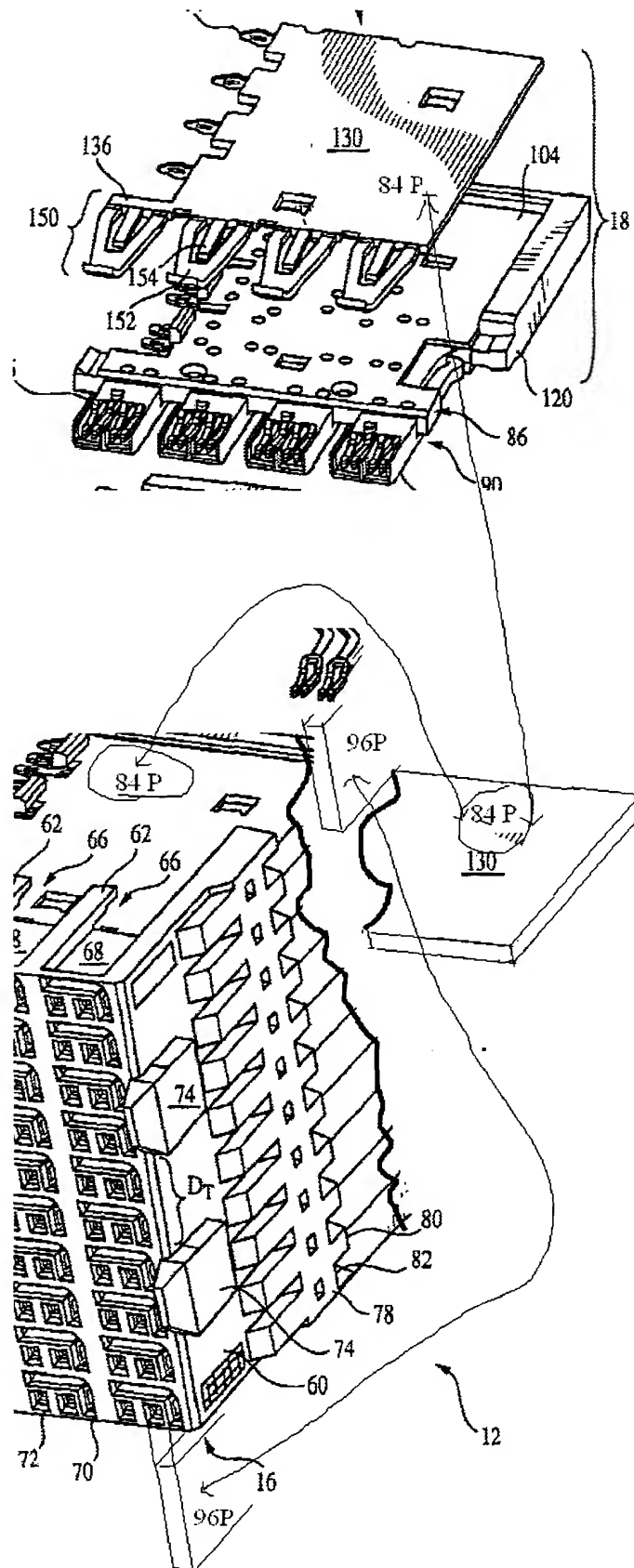
It is noted that this is substantially the same rejection as was documented in the previous office action.

Response to Arguments

-- In response to applicant's argument (page 10, lines 8-10) concerning that Paagman does not disclose or suggest an electrical connector having each pair of signal contact pins located in a plane substantially orthogonal to the ground plane, the examiner disagrees. Paagman shows (figure 8a) all signal contact pins 43 being located in a plane (the plane running left and right) substantially orthogonal with the ground plane 38 (the plane going into the page) (figure 8a). Further, although this reasoning is not applied to the rejection, applicant has not defined the thickness of the plane thereby leaving the limitation of "a plane" very broad (i.e. Paagman shows substantially all the elements to the left of numeral 9 in the same plane for examination purposes).

-- In response to applicant's argument (page 10, lines 12-15) concerning that Kline does not disclose or suggest an electrical connector having each pair of signal contact pins located in a plane substantially orthogonal to the ground plane, the examiner disagrees. Kline does show an electrical connector having each pair of signal contact pins 96 located in a plane 96P (see examiner's figure) substantially orthogonal to the ground plane 84P (see examiner's figure).

Art Unit: 2833



Conclusion

- Effective May 1, 2003, the United States Patent and Trademark Office has a new Commissioner for Patents address. Correspondence in patent related matters must now be addressed to:

Commissioner for Patents

P. O. Box 1450

Alexandria, VA 22313-1450

For additional information regarding the new address, see Correspondence with the United States Patent and Trademark Office, 68 Fed. Reg. 14332 (March 25, 2003).

- **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

- Any inquiry concerning this communication or earlier communications from the examiner should be directed to James R. Harvey whose telephone number is 703-305-0958. The examiner can normally be reached on 8:00 A.M. To 5:00 P.M.

Art Unit: 2833

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula A. Bradley can be reached on 703-308-2319.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

- Effective **October 1, 2003**, all patent application related correspondence transmitted by facsimile must be directed to the central facsimile number, **(703) 872-9306**, with a few exceptions *See Fax Automation in Technology Center 1700, 1237 Off. Gaz. Pat. Office 140* (August 29, 2000). Replies to Office actions including after-final amendments that are transmitted by facsimile must be directed to the central facsimile number. Unofficial correspondence such as draft proposed amendments for interviews may continue to be transmitted by facsimile to the Technology Centers (TCs). *See Fax Automation in Technology Center 1700, 1237 Off. Gaz. Pat. Office 140* (August 29, 2000).

James R. Harvey, Examiner

jrh
January 12, 2004



THO D. TA
PRIMARY EXAMINER